These minutes were approved on October 21, 2004.

MEETING MINUTES
Restoration Advisory Board
March 18, 2004
South Memphis Senior Citizens Center
Memphis, Tennessee

The Restoration Advisory Board (RAB) meeting was held at 6:00 p.m. on March 18, 2004, at the South Memphis Senior Citizens Center located at 1620 Marjorie Street, Memphis, Tennessee. The attendance list is attached.

WELCOME AND INTRODUCTIONS

MR. WILLIAMS: Good evening. I would just like to welcome everybody to the March meeting. And I would like to thank everybody for their diligent effort in coming out and continuing to keep informed on what's going on with the RAB and to inform the community about what goes on at the RAB.

So, without further adieu -- I don't think we have enough people here to approve the agenda or to approve the October minutes. So we'll table that to somewhat the end of the meeting or when we get enough people in for a quorum.

I would like to know if there are any -- I have one thing I need to tell y'all. Ms. Mills, Ms. Betty Mills Bates, relocated to Maryland, and she will no longer be with the Restoration Advisory Board. She called Ms. Alma Moore to let her know, and she said she was trying to continue her government service, and she relocated to Maryland.

And Ms. Tonja Mitchell also resigned from the Restoration Advisory Board. She stated that her church work and work on the job was taking a great deal of her time, and she was resigning from the Board. Both Ms. Bates and Ms. Mitchell would like to stay on

the mailing list to stay informed on what goes on with the Restoration Advisory meetings and things like that. Okay.

MR. DEBACK: I want to welcome everybody here tonight, and I just want to introduce some people. Some of them you have met before, and we have some new people on the team, on the cleanup team at the Depot. First of all, I would like to introduce Jackie Noble, Mike Dobbs and my boss, Jeff McCauslin. They're in here from Pennsylvania, from the headquarters. And with the new remediation contractor, MACTEC, we have Angela McMath, Wayne Crist and Tom Holmes. And, of course, all of you know Steve Offner and Dave Nelson from CH2M Hill. With that, I'll turn it over to you.

OLD BUSINESS -- COMMUNITY RAB HOUSEKEEPING ISSUES

MR. WILLIAMS: Okay, we're going to move right along to Old Business. Does anyone have anything to discuss on the community RAB cleanup issues? (Brief pause.) Do any members have anything they would like to bring up or discuss? Well, I guess we will move right along.

MS. PETERS: Are they up to date on everything they are supposed to have gotten done by this time?

MR. WILLIAMS: Well, the BRAC (Base Realignment and Closure) Cleanup Team has submitted two minutes of meetings, one for October and one for December of last year. And I guess this is to bring us abreast of what's going on. So, if you received your minutes of the October meeting, you should have received the minutes of the BRAC. If you get a chance, take a look at it, and if you see a discrepancy or want to discuss anything, send Alma a copy of what you want to talk about, and we'll bring it up in the next meeting.

MS. PETERS: All right.

FOCUS ON THE FUTURE -- ENVIRONMENTAL RESTORATION PROGRAM MILESTONES AND UPDATE

MR. WILLIAMS: Okay, we're down at the "Focus on the Future," and we're going to let Mr. John DeBack handle that.

MR. DEBACK: You know if you cannot hear me -- I prefer not to wear the microphone. Can everybody hear me?

THE BOARD: Yes.

MR. DEBACK: I'm just going to give you a quick update on what we've been doing at the Depot. I know you had an update at the last meeting, but this is to let you know what we've done since then, a quick progress report on the Main Installation, and what's going on out there at Dunn Field and a little bit about what we're going to be doing in the future.

We've completed our enhanced bioremediation studies at the Main Installation. As you recall, that was the Preferred Alternative for treatment of groundwater. We had two alternatives that we were looking at. One was the injection of vegetable oil and the other was the injection of sodium lactate. The outcome of that pilot study showed that the sodium lactate is much more efficient at correcting the problem than the vegetable oil.

We're working on the Remedial Design at the Main Installation. That is the fifth of the six stages in the CERCLA (Comprehensive Environmental Response, Compensation and Liability Act) process. The results of the pilot test will be used to complete that design and implement the remedy.

The soil remedies have all been completed on the Main Installation. We anticipate completion of this Remedial Design document in the spring. This is welcomed news, too, because this is where we're headed. We want to transfer property. We are preparing a Finding of Suitability to Transfer (FOST). It's the third one that we've done at the site. This particular transfer is on the Main Installation. It does not cover the entire Main Installation. It covers about 358 acres.

With this Finding of Suitability to Transfer, we will be transferring the golf course through a recreational transfer through the Department of Interior National Park Service. And we'll be transferring a large portion of the industrial park -- it includes 65 buildings and about 250 acres -- to the Memphis -- or -- excuse me -- to the Depot Redevelopment Corporation. That will be a deed transfer from the Army.

There will be a public comment period on this FOST. It will start I believe next Wednesday, March 25th, and run through April 26th. We welcome your comments.

This is the area that's included in the FOST. (Indicating) The white area on the map here, as you can see, and the green area to the far right of the map, those are the two parcels that we've already transferred -- excuse me -- three parcels. There was the housing that went to Alpha Omega, the south parking lot. About four and a half acres went to the City of Memphis for the new police precinct, and, of course, the administration building and the north parking lot went to the Depot Redevelopment Corporation. The golf course, for those of you who don't remember right down here, (Indicating) it's about 30 some-odd acres. That will go to the

City of Memphis. The remainder of the white area is part of the Memphis Depot Business Park. It will be deeded to the Depot Redevelopment Corporation.

Next, we just completed the Record of Decision (ROD) for Dunn Field. It was signed by DLA (Defense Logistics Agency) today. It will be sent to the Tennessee Department of Environment and Conservation (TDEC), and to the EPA (Environmental Protection Agency) for final signature. It documents those cleanup alternatives that you have already commented on in our Feasibility Study. And, as you can see, these are the alternatives that were part of that study.

This ROD includes responses to your comments that were submitted during the 30-day comment period. In fact, I think it was a 60-day comment period on the Feasibility Study.
This slide was actually prepared before we got the signatures, but DLA has signed the ROD. It's under review and signature by the other two agencies. The department of Army has already reviewed it.

As part of our Remedial Design preparation for Dunn Field, we've conducted a Groundwater Treatability Study, and a part of that was the injection of zero-valent iron (ZVI). We talked about that, and the initial results of that show much more success than we even anticipated. So, it looks like the zero-valent iron injections, that portion of the remedy, is going to be very successful.

We're still waiting on final results for the column tests that we're running for the permeable reactive barrier (PRB) that will be built

underground on the northwest corner of Dunn Field, on the other side of the railroad tracks.

Next, from our Pre-design Investigation of the Disposal Sites, we investigated all 17 of the disposal sites that were identified. We confirmed the locations of the suspected sites and looked at the waste that was buried out there. The results of this Pre-design Investigation will be used to design that portion of the final remedy.

This is just a picture of one of the excavations. (Indicating) We've found a lot of different things. We even found a little food down there. I don't know if that's a C-ration or a K-ration, but it's a ration can. Up in the upper, right corner there is a map of Dunn Field showing the different disposal sites that we investigated. As you all know, our goal and your goal is to restore the Depot property and to ensure that it is safe for community reuse. We're nearing the completion of the key decision making process in CERCLA. We've completed the ROD on the Main Installation. We've actually completed the ROD at Dunn Field. It's in for final signature.

Soil remedies are complete on the Main Installation. The investigation of the soils is complete on Dunn Field. You will see some activity this summer on Dunn Field. There will be some excavation activity with soils up there.

The pilot studies for the groundwater remedies should be completed this summer. We have completed the soil vapor extraction pilot test. We're near completion of the ZVI injections,

and we're awaiting the final results on the column tests for the PRB.

Like everything in life, the cleanup evolves -- this whole process has been an evolution from the beginning. We've changed service agents for Remedial Action installations. The Air Force Center for Environmental Excellence (AFCEE) is now the service agent. Their contractor, MACTEC Engineering, is the Remedial Action contractor. MACTEC is currently maintaining and operating the pumping system that we have, and they will be assisting with the design and installing and operating the remedy, both on the Main Installation and at Dunn Field.

I have been here seven years, and it seems like I just got here yesterday. I have met a lot of people since I have been here. This has been quite an experience for me. This group here, I feel like Shawn, I feel this is a part of an extended family for me. Quite frankly, I have been in Memphis longer than I have been anywhere since I graduated from high school. It's with a heavy heart that I leave. But as many of the people that I have talked to around here, you have to go where the work is, and for me it's not here anymore.

Mike Dobbs, who many of you -- in fact, I think everybody on the RAB knows Mike. He's been down here several times. He is in charge of the environmental shop up at the Defense Distribution Center (DDC). He will be taking my place as the BRAC Environmental Coordinator. He is committed to maintaining the same dialogue that we've had since I have been here.

For MACTEC, Mr. Tom Holmes primarily will be doing a lot of the tasks, the day-to-day tasks, administrative type things that I have taken care of here.

This is a list of the community contacts. (Indicating) As always, 544-0613. That's been our community information number. That remains the same. We're not changing that. These are the phone numbers and e-mail addresses for Mike Dobbs (Indicating), who will be the new backhand for Jackie Noble, who is in charge of public affairs up at the Defense Distribution Center.

Last, but not least, don't forget our two regulators, Turpin Ballard and Jim Morrison. If you think Mike's getting out of hand, give these two guys a call.

MR. MORRISON: Those are the incorrect phone numbers and e-mail address for me. Mine have changed.

MS. MOORE: We'll make that correction, and we'll send it out to you.

MR. BALLARD: Just make it the next one, an update.

MR. DEBACK: Where are we now? Well, we're at the Remedial Design for both Dunn Field and for the Main Installation. We're in the process of completing the Remedial Design and implementing the Remedial Action at the Main Installation.

Where are we headed? This is where we want to be. This Preliminary Closeout Report, 2006, 2007, in that area. (Indicating) This is a report that shows that we've put the remedy in the ground that it's operating as it was designed and that the cleanup activity is occurring as it was designed. Ultimately, we want to go to the Final Closeout Report, which means that all of the cleanup activity is complete.

The Main Installation -- the next thing we have to do is complete the Remedial Action Work Plan and begin installation of the remedy. In 2005 we should be implementing the remedy at the Main Installation, followed up by long-term monitoring. Remember, it's groundwater. Once we install the remedy, there shouldn't be any additional installations that we need to take, and, so, from that point on, we monitor that remedy to make sure that it's operating properly.

In the winter of 2004 and 2005 at Dunn Field we should be completing our Remedial Design in the spring. We anticipate another FOST for public comment. That FOST will include the east side of Dunn Field almost up to Person. There's a little piece along Person there that will not be included in that FOST. That is the area of Dunn Field that will have no further action needed to be transferred. It involves two property transfers. There will be a parks transfer at the northeast side of Dunn Field, and there will be a deed transfer to the City of Memphis for use -- excuse me. It will be transferred under the Transportation Authority.

For those of you who have forgotten, the ultimate use of the field out there -- it's going to be part of the new rail line that's going out to the airport. And that's part of the -- it's not showing -- for those of you who may have seen the flyers that MATA sent out, it's not showing on MATA because it's a maintenance yard where they're going to store their cars. That's the plan, to store their cars and to maintain them. And, of course, the park will be at the north end of Dunn Field.

In the summer of 2005 we should have the Remedial Action Work Plan completed and begin installation of the remedy at Dunn Field. Any questions?

MR. WILLIAMS: Yes. Okay, my question is: As you turn the different parcels over to the Redevelopment Board, is this saying that the government is relieving themselves of the responsibility of it or has the Master Lease at the Department of the Army come in? So now we're just going to turn this on over to the Redevelopment Board and we're through with it or how is that? Do you understand what I'm asking?

MR. DEBACK: Yes, I do.

MR. WILLIAMS: Okay.

MR. DEBACK: What you're asking is what happens when we deed the property to the Depot Redevelopment Corporation. At that point in time, the property belongs to the Depot Redevelopment Corporation just as if you went out and bought a house. If you go out and buy a house, the guy that owned that house before you has no further interest in that house.

Now, there's one exception to argue. Our deed contains covenants. One of those covenants is that if, in fact, at some future time there is some environmental problem that was caused by the Army or by the government, and we didn't know about it and it's discovered, then the Department of Defense or the Army has the responsibility to come in and take care of that.

MR. WILLIAMS: Okay.

MR. DEBACK: Mr. Tyler.

MR. TYLER: Yes, sir. Congratulations on finding a job in this economy.

MR. DEBACK: Thank you. I feel very much the same way.

MR. TYLER: Now, to the business at hand. On the page Focus on the Future, what happened to CH2M Hill?

MR. DEBACK: They're still here.

MR. TYLER: Yes, but this new group that was brought in, the Air Force Center for Environmental Excellence, who made that decision, why and when to change in the middle of the stream?

MR. DEBACK: Okay, it's not really a change in the middle of the stream. The Air Force Center for Environmental Excellence, like the Corps of Engineers, is a contracting agency --contracting management. We don't hire the contractors directly. We go to the service agent who has the expertise and open contracts for this type of work. And that agency then provides us a contractor to do the work that we need to have done.

What happened with Jacobs/Sverdrup, for those of you who were with us earlier, they were contracted through the Mobile District of the Corps of Engineers. That contract expired. It wasn't a matter that we renew the contract. It was that contract expired.
DDC then competitively went to the Corps of Engineers, the Air Force Center for Environmental Excellence and said this is the work that we have. What do you have to offer us? That's how they came on.

MR. TYLER: Okay, now, that's well and good. However, this company that we had on hand was proposing a remedy that's already in place.

MR. DEBACK: Excuse me. I think you're confused. CH2M Hill is still on the job.

MR. TYLER: Right.

MR. DEBACK: CH2M Hill is contracted through the Corps of Engineers in Huntsville. The way environmental cleanup works in the government, one contractor does the investigations and the planning and the design.

MR. TYLER: All right.

MR. DEBACK: For the installation and implementation of the remedy, their contract doesn't allow them to bid on that. So, the implementation

and construction and operation of the remedy would be with a different contractor.

MR. TYLER: Well, you see, in the middle of the stream when you change horses, those that are up in the public view may not have all this insight.

MR. DEBACK: In fact, we're not changing horses. This has always been by design -- the change of horse, if you will, would have been Jacobs. Jacobs did do some of the Remedial Action. As you know, they did the soils cleanup on the Main Installation. They did the lead removal at Dunn Field, and they did this preliminary design investigation at Dunn Field, and for several years they operated the pumping system. But they didn't install the pumping system, and they didn't operate it initially. That was done by another company whose contract expired and then Jacobs came in.

MR. TYLER: Let me get it straight. You're changing management, not contracts.

MR. DEBACK: We're changing both. We're changing -- the Air Force Center for Environmental Excellence is the contract management team.

MR. TYLER: All right.

MR. DEBACK: And the contractor is MACTEC. MACTEC, we say they work for us, but actually they work for the Air Force Center for Environmental Excellence.

MR. TYLER: So, they are supposed to do everything that the old contractor was contracted to do.

MR. DEBACK: Yes -- no, the old contractor was not contracted. They were only contracted the do the things that they did.

MR. TYLER: Okay.

MR. DEBACK: And their contract term expired.

MR. BALLARD: The types of activities.

MR. TYLER: And now you've got down here Mike Dobbs, Environmental Manager.

MR. DEBACK: Mike Dobbs, yes. Stand up, Mike. You've met Mike.

MR. TYLER: And he's going to take your place?

MR. DEBACK: He is going to take my place as the voting member on the BRAC Cleanup Team.

MR. TYLER: And then you've got "Community contacts, community information line, environmental program oversight support," and all this is going to be contained where? Just on the phone line? There's not going to be any staff or anybody on staff that you can come to?

MR. DEBACK: There will be nobody on site.

MR. TYLER: So, when was this decision made to go that route?

MR. DEBACK: The decision has always been that once the Record of Decision was rendered, then my position would go away.

MR. TYLER: I thought that was still somewhat in doubt.

MR. DEBACK: Well, it's not in doubt. I have an assignment in Washington.

MR. TYLER: Has it been signed?

MR. DEBACK: I'm sorry?

MR. TYLER: Has it been signed?

MR. DEBACK: Yes. My house is for sale. I'll give you a good deal.

MR. TYLER: In other words, it might be a school district in LA bought that land, built a school, then when they dug down and hit all that poison, the house still was for sale on top of I don't know how many gallons of poison. So, you know, sometimes you need to ask these questions after the horse is gone. Because if you bring a new horse in on top of poison, you've still got the same problem.

MR. DEBACK: Well, I'll tell you what, Stanley, my e-mail address has not changed, and if you ever have a question about this site, feel free to contact me.

MR. TYLER: I have a question about the procedure used to, you know, change all these contracts around, and then you go from a full staff over the Depot to a single person phone line. There was no input? No one asked about that?

MR. DEBACK: Well, that's kind of a stretch, a full staff of one.

MR. TYLER: Right, and now you're going to a phone line.

MR. DEBACK: I've been -- well, a lot of times all you had was the phone line. Because I go TDY a lot. So I don't really see it as much of a change. Because the day-to-day things that I did, those things are not required anymore now that we've gotten through the ROD.

MR. TYLER: Well, as you know, I used to make a habit of stopping by and coming.

MR. DEBACK: That's right.

MR. TYLER: It wasn't like I'm just talking out of turn.

MR. DEBACK: I understand.

MR. TYLER: I used my time to go over there to check in and see what was going on, and it was never implied to me that this could happen, like, overnight. I thought it would be a gradual process.

MR. DEBACK: Well, you can still stop by the Depot, because Tom and his people will be there on a regular basis. I mean, we're going to be installing the remedy. So there will be people there, and you can call that number, and they'll make arrangements. If you need to get on the Depot and look around, they will make arrangements for you to come out there.

MR. TYLER: One last question.

MR. DEBACK: Yes, sir.

MR. TYLER: By "installing the remedy," when will the results from the remedy be posted? Like saying the house was clean, the remedy is effective, and it's working just the way we put it on paper. Paper is one thing, theory is another, and then you get to practice.

MR. DEBACK: The remedy -- they will still have the BCT (Base Realignment and Closure Cleanup Team) meetings. The BCT meeting minutes will still be a matter of record, and those results from those remedies as they occur will be included in the BCT meeting minutes, just as we do now. You know, if you read the BCT meeting minutes, you see

the things that we're talking about, and the successes and some of the not so successes, you know, come out in the BCT meeting minutes.

MR. TYLER: Right. That's why I asked at the last meeting for the website about the proposed remedy that you guys are going to be using, and I had it in the minutes. No one faxed it to me, all that information. You remember the meeting I asked about the website so I could get some other information on what was going on? And it never got to me.

MR. DEBACK: I wasn't aware that it didn't get to you.

MR. TYLER: Because that's why I had a lot of questions. Because had I had the information, I could have done the research then.

MR. DEBACK: But the website -- you've had access to the website.

MR. TYLER: I'm talking about the websites for these contractors that you are using for the remedy.

MR. DEBACK: I am not sure that I understand.

MR. TYLER: You had a -- what was that scientific proposal?

MR. DEBACK: The (unintelligible) of record?

UNIDENTIFIED SPEAKER: No, the PRB, University of Waterloo site.

MR. BALLARD: Oh, zero-valent iron.

MR. TYLER: Right, zero-valent iron. So I wanted the website so that I could see where it was used before, how effective it was, how much time was used so I could be properly prepared to come to the meeting. That information was not given to me so that I could be prepared.

MR. BALLARD: I think that was probably my data. I think I had probably said I would send it to you, and I guess I failed to do so. I'm sorry. You know, the way I found my best information on zero-valent iron was I did a Google search on zero-valent iron, and I came up with a whole bunch of hits. But I can send you some links to the ones that I found.

MR. TYLER: All right, thank you. That's the reason why I had questions. Sorry about taking up so much time.

MR. DEBACK: That's okay. I also have a CD-ROM from one of the vendors that installs the permeable reactive barriers. I'm more than happy to give it to you if you would like.

MR. TYLER: Thank you.

MR. WILLIAMS: Anymore questions?

MR. DEBACK: Mr. Brayon.

MR. BRAYON: Just one more minor question. Will the lake in the golf course region support animals or fish in particular?

MR. DEBACK: Will it support animals or fish?

MR. BRAYON: Yes.

MR. DEBACK: The last time that TDEC went down there to try to get fish out of it there weren't any fish in there. Will it support fish? There are geese down there all the time. Are there fish in there? I don't know.

MR. BRAYON: So, it hasn't been cleaned up at all?

MR. DEBACK: There is no risk.

MR. BRAYON: There is no reason?

MR. DEBACK: There is no reason to clean it.

MR. BRAYON: I thought that they found something in that lake.

MR. DEBACK: If you recall from the Feasibility Study and the Record of Decision, there is no further action required on the lake.

MR. BRAYON: Because?

MR. BALLARD: The ecological risk evaluation didn't find there was an ecological risk, and it's been a while. The ecological risk assessment didn't find that there was a reason to take action. And the human health risk assessment, with respect to the ponds, found the same. Although the site was listed on the NPL (National Priorities List) in part because of some, I believe, sediment samples that had some pesticides in them, the more comprehensive sampling that was

done during the RI, when looked at through the Risk Assessment process, you know, found no unacceptable risks from that particular portion of the Depot.

MR. BRAYON: Okay, thank you.

MR. DEBACK: Any other questions? (Brief pause.)

MR. DEBACK: Thank you.

REVIEW AND APPROVE MARCH AGENDA

MR. WILLIAMS: Okay, before Mr. Turpin Ballard comes up, we want to go back up to the top of the agenda for a minute. Did everyone receive a copy of the agenda on their desk? So, I wanted y'all to review the agenda, and I wanted someone to make a motion to approve the agenda.

MR. TRUITT: So moved.

MR. BRAYON: Second.

MR. WILLIAMS: Any opposed? (Brief pause.)

MR. WILLIAMS: So moved for the agenda.

REVIEW AND APPROVE OCTOBER 2003 MEETING MINUTES

MR. WILLIAMS: Did you review the minutes of the meeting that we received for October 2003? And if there were no changes that needed to be done, I would like someone to make a motion on that.

MR. TRUITT: I move for approval.

MR. WILLIAMS: No objection? (Brief pause.)

MR. WILLIAMS: All in favor?

THE BOARD: Aye.

MR. WILLIAMS: Abstained? (Brief pause.)

MR. WILLIAMS: So moved. The minutes are approved. One thing here, I've got the sign-in sheet going around. Make sure that everyone signs in, and

I'm sending around an update sheet on the RAB members. So, look at this sheet, and if you have any changes in your address, phone number or anything like that, if you will update it, I would appreciate that.

BCT UPDATE

MR. WILLIAMS: And next we have Mr. Turpin Ballard with the BCT update.

MR. BALLARD: All right, I will try and cover some of the activities we have covered in the BCT in the last three meetings, and some of the milestones that we have achieved aside from DLA signing the ROD today. And EPA, we would expect to sign it within the next week or two, depending on how quickly it gets transmitted to us.

One of the key elements for the Main Installation ROD was the Land Use Control Implementation Plan (LUCIP). Because one of the elements of the remedy was selection of land use controls, deed restrictions to prevent residential use and groundwater use restrictions. Part of the Remedial Design was to develop a plan on how these land use controls would be implemented. The whole land use control issue has been a pretty big one for DOD (Department of Defense), EPA and the other government agencies involved in the cleanup. So, we feel very fortunate that we had the assistance of both John DeBack and David Bauxbaum, the attorney for the Army.

Our headquarters folks spent a lot of time reviewing the document, and it's going to be a part of the final Remedial Design document for the Installation when that goes final. But it describes all the controls that are going to be put into place or are currently in place to implement the restrictions that were selected in the ROD.

So that was a long time coming and the first Land Use Control Implementation Plan since the settling or resolution of a major dispute between EPA and DOD. It was a long time dispute. It's been settled, and this is the first document to come out of that dispute. So, it's kind of a milestone for everybody.

Let's see. In the meeting today we were talking about the Main Installation design and how we were going to move forward with injection of the sodium lactate, and I think we've come up with a pretty good approach. Because if any of you have driven by and seen how much activity there is in the southwest corner with Barnhart (Crane and Rigging), we had to really try and design around that and couldn't install sort of a fixed injection system which had piping running all over the place to the multiple wells. So we'll be coming up with a design that installs the wells for injection that has a mobile truck mounted injection system which can just go from well to well to inject -- to stimulate the biological activity that breaks down the contaminants.

The treatability preliminary -- well, actually, I won't say preliminary, but the results so far from the Dunn Field Treatability Study for the zero-valent iron or ZVI injection, as John said, it's really kind of astonishing. I have been in the Superfund now for about 15 years, and, you know, we've come a long way in groundwater treatment. But to see in the course of about two months up to 99 percent reduction for contaminant concentrations is just amazing, going from 40,000 parts per billion in one treatment area down to 800. If you think about how much time we would spend pumping and treating to get to those kinds of concentrations. So, that was a very pleasant -- I won't call it a surprise, but I kind of expected a good result, but nothing like that.

MS. ARNST: Does that compare with the results that have been achieved at other places it's been used?

MR. BALLARD: Yes, yes. That's one of the really -- the zero -- it's just iron. It's zero-valent iron shavings. It's, you know, powdered iron, I guess you would call it, and something so simple. But just the reaction that occurs when it hits the groundwater and with the chemicals involved creates a reducing zone that strips off the chlorines and runs it really very quickly through the breakdown chain until you end up with an innocuous end product. We see that kind of result, and when we talk about ZVI injections in the source area of the Dunn Field, it's zero-valent iron. When we're talking about the PRB or the permeable reactive barrier, which is -- we're planning to put sort of parallel to the railroad tracks northwest of Dunn Field that also is an injection of zero-valent iron. It's a different application of the same treatment method.

So, I guess we're all pretty excited about that, and then we also spent a good part of the day talking about the long-term monitoring program for groundwater on the Main Installation. Because our ultimate goal here is to delete the site from the National Priorities List, get it off the Superfund list, and you can only do that when you meet all the Remedial Action objectives. When we get the remedy in place and construct it, that's a big milestone. Because we call it construction complete with respect to groundwater. And the only thing left to do then is monitor for groundwater progress toward cleanup. But our ultimate goal is to reach those cleanup levels and delete the site from the National Priorities List.

It's also a major milestone with the community because it takes a -- even if the site itself is not particularly -- you know, it's not dangerous, but there can be a stigma from having an NPL site in

your neighborhood or in your city. Most cities have them, but a lot of people will complain that it reduces their property value to be next to a Superfund site. Well, once we can delete the site, you know, that stigma is resolved.

So, that's a little more than a real BCT update, but I kind of wanted to talk a little bit about our long-term goal here, which is not just to transfer the property, but to get it off the NPL.

MR. WILLIAMS: Any questions? Mr. Tyler.

MR. TYLER: As of January 15th, BCT minutes -- I noticed that in the ZVI pilot study on MW74 and 134, with a couple of exceptions, you had a somewhat high contamination level. According to this and according to Mr. Offner, he's awaiting the December analytical results to determine if there were any trends. Would you elaborate on how high they were? What is the status of that right now?

MR. BALLARD: We talked about MW134 first. We talked about that today. When they first started off with the Treatability Study, they took a baseline sampling where they injected the treatment material. I believe in MW134 the concentration of the TCE was five parts per billion, and for that particular area of Dunn Field, that's anomalously low. The other injections -- other wells around it were anywhere from 20 to 40 parts per billion.

So, when the first sampling results came in and it showed like, 800, we were looking at that going, 800 parts per million -- no, I'm sorry. I'm trying to remember the figure on the table. I was looking at it today. Anyway, I can't remember the number, but it showed significantly higher than the baseline result. We're thinking, what's going on here? Our injection pushed some contamination over there? We weren't too sure what was happening, but when we got the more recent results today and we

saw that there was the initial baseline result of five and then the result that was noted in these minutes which was higher, significantly higher. But then the next two results which we saw today cut down from that second result a lot.

So we actually -- we don't know why there was -- either there was an initial increase because we mobilized some contamination to that location or that particular sampling we collected. You know, something was happening in either the collection or analysis or transport which caused it by itself, which that's why we don't make our decisions on one round of samples. And we collect multiple samples so we can look at trends not only at one location but at locations -- the area as a whole. Overall, the ZVI results have been, like I said, very promising.

MR. TYLER: I hear Mr. Morrison reported that the initial off-site suspected groundwater contamination sort of upgradient Dunn Field named the Wabash Avenue Investigation. What's the status on that? Because I know how y'all are concerned about off-site migration coming back and redoing what you just got through doing.

MR. BALLARD: We're talking about upgradient from Dunn Field.

MR. TYLER: All right.

MR. BALLARD: So this would be contamination which is not from the Depot. It's coming from upgradient or east of the Depot, coming down onto the Depot. And I will let Jim take it any further than that.

MR. MORRISON: Like Turpin was saying, we have the information -- well, I wish I had a scaled surface map up there, but we don't. (Indicating) But up in the very northeast corner of Dunn Field we were getting contamination along that diagonal, essentially parallel to the railroad track up there. And, so, what we did is we put in some off-site monitoring wells upgradient from Dunn Field to find out was this contamination that we're seeing at that portion of Dunn

Field, was it actual contamination that was attributable to the site or was this contamination migrating onto the site from an off-site source.

When we put in the three wells, what we found out was that one of the wells started showing up as the same type of contaminant that we were seeing on Dunn Field at a very low level in the aquifer. For that to happen, you have to have a release further upgradient. The contamination doesn't just come into the aquifer and dive all the way down to the bottom. It usually takes its time working its way down through a series of steps to get down there.

And, so, that did confirm to us that, indeed, the contamination appears to be originating off site that's contaminating that portion of Dunn Field. One of the other reasons we always look at areas on these facilities, we call them long-term operational areas, in other words, there would have to be some reason for the contamination to be there. Well, there was nothing going on in that area. There's always been a park or an open area. There was no active facility that would have actually contributed to that. That's why we started suspecting off site.

After we got the information in, we looked upgradient, which would have been to the northeast of the site, and we looked for the closest commercial area that we could find. And what we noted was from the maps, and we also started driving by, some of my guys out there, to look and see what was going on up there. And at the corner of Wabash Avenue -- I think that's called Wabash Cove there -- and Castalia, there had been several businesses for -- stretching back probably 40 years now -- gas stations, a machine shop that has been in business there for almost 35 years. And these

types of businesses would use that type of contaminant to release the material that they were making right there.

So, we're just in the first stages of looking to see if that could be -- and I want to stress this -- a potential release zone. Because in between that area there and Dunn Field is residential. So, I would not suspect anything in there. So, that is the closest upgradient location. That's what we're doing right now, and we've pushed it into a program called Preliminary Assessment and Site Spreadsheet Program that we have that goes out there and does a background check of what businesses did and if it looks like they had the potential to release that where we may go out there and install some wells and everything to confirm whether or not a release is occurring there.

So, that's where we are, and that process has just started, and we're -- as a matter of fact, as of the end of this month we will be submitting a report to EPA.

MR. BALLARD: With respect to the contamination from whatever that source is, which is, you know, already on Dunn Field, we would expect the remedy that we're selecting to address that contamination, whether it was released by the DLA or Army or not.

MR. TYLER: And the site -- you remember the Southwest Mallory area, you were saying about the flow of the water flowing away from Dunn Field.

MR. BALLARD: Southwest corner?

MR. TYLER: Yes, where they had all them (unintelligible) and everything at one time there was a point of possibility of contamination.

MR. BALLARD: From off site flowing on?

MR. TYLER: Yes.

MR. BALLARD: Those wells have been mostly nondetect the last few ---

MR. MORRISON: They're almost becoming a non issue unless something pops back up on them. We're not really seeing anything right now. Is Steve Offner here?

MR. BALLARD: No.

MR. MORRISON: He could have more update on that.

MR. BALLARD: Mr. Tyler, you asked me about two monitoring wells (MW), and I only talked about one on that. So, if you want to get back to answer that one, MW74 -- I'm going to have to stand up. So I'll talk louder. MW -- it's hard to see because it's so small, but our treatment zone for our treatability study was right here. MW74 is down gradient or down flow in groundwater from the treatment zone but near enough within the Depot boundary. We did see an initial increase in concentration in the MW74 over the baseline. And we speculated that that was because of the physical act of injecting a viscous material into the groundwater, just physically pushed a higher level of contamination out towards MW74. However, we also found that the treatment material itself made its way out that far as well so that the subsequent sampling round showed significant reduction. So, again, after that initial increase in those two wells, we've seen a substantial decrease.

MR. MORRISON: Just to follow up what Turpin was saying about the ZVI, it's just amazing to see. I know when I got into this industry, mainly what we were doing was just pump and treat. We try to do a containment catalyst creating a hydrogeologic barrier out there. And now we're seeing things such as the ZVI came along, the sodium lactate that we've pushed in that we've had great success. As a matter of fact, here locally at the Air Guard we've been able to decrease from 20,000 parts per billion down to around 50 parts per billion. So we're reaching MCLs (maximum contaminant levels) rather quickly, and this has been in almost less than a year

that we were able to do that. So the cost of the technology is continuing to come down, and for an environmentalist, this is very good, and I'll have to comment on one thing. It's been the military that has funded all these innovative technologies. If it hadn't been for their initiatives they have been pushing for the last five to six years now, we would not be anyplace near where we're seeing the environmental remediation going. It's incredible ground. It's being shared with everybody.

MR. WILLIAMS: Anymore questions? (Brief pause.)

RAB COMMENT PERIOD

MR. WILLIAMS: I guess we'll move right along to the RAB Comment Period. Does anybody have any comments?

MR. TYLER: I noticed that according to this layout design that Mr. DeBack presented, this essentially will be the last RAB board meeting, and it's going to be disbanded or do I have that incorrect?

MR. DEBACK: No.

MR. TYLER: Well, when is the next meeting scheduled or how will we handle that? Be something over the phone line? Is there going to be a vote on the RAB or how are we going to handle that?

MR. DEBACK: I don't have a schedule for the RAB, and it will be up to the RAB to determine. Mike is committed, as I was. When we have information for the community, new information, significant information, we will present that to the community.

Now, there's been a proposal made, if the RAB were to disband, that we would still hold community meetings so that we could put information out to the community.

MR. TYLER: The only reason I was concerned is that we've got a new technology here, and it's fascinating. A lot of information is

coming in, you know, and like with many new technologies, tomorrow it may not be as beautiful as it was today.

MR. DEBACK: It's new, but it's not that new. It's been around for a while.

MR. TYLER: A lot of stuff has been around a while and turned out -- turn around and said well, it's not all it's cut out to be. Just like the (unintelligible), the cure is worse than what's emitted.

MR. BALLARD: Well, I would like to just point out that although the Record of Decision selects this particular remedy, the purpose of the remedy is to meet objectives that we've also set in the Record of Decision. And the key thing is that these are the objectives which you have to meet in order to be protective of human health and the environment. So, just because we say we think this is the best balance of the nine criteria and so let's go with it, there's no guarantee it's going to work. There is never a guarantee. The closest you get to a guarantee is that if it doesn't work, the objectives are still there, and we still need to meet them. And if we can't do it this way, then we have to come back, amend the remedy and do it another way.

MR. TYLER: Let me rephrase this. Right now it looks very promising.

MR. BALLARD: Yes.

MR. TYLER: Okay, thank you.

MR. DEBACK: And just as one additional comment, as you know, we implemented older technology, a pump and treat system, to contain the contaminants out around Dunn Field, and it has done an okay job. It hasn't been one hundred percent successful, you know that from the Five-Year Review that we did. But since we implemented that remedy, these other technologies have proven to be effective at other sites, and that's how we came to choose these alternatives for a remedy.

MR. WILLIAMS: Okay, I would like to ask a question. Did anyone receive some new -- a new draft of the regulations that governs how the RAB

committee is supposed to act or how we set the RAB meetings and things like that? I received some rules here, and I was going to give it to Alma to -- if she would run a copy for everyone, and it's a draft revised, proposed RAB rules here for 2004. It was done in January.

MR. WILLIAMS: Okay, would it be possible?

MS. MOORE: If the RAB would like a copy?

MR. WILLIAMS: Would y'all like a copy of what governs the Restoration Advisory Board?

MR. TYLER: If the chairman thinks it's wise, I'm for it.

MR. WILLIAMS: Yes, I think it is wise. Seeing that we're somewhat coming to a close on the RAB, I think we really need to read these rules and regulations to see if everything is in place that should be and if we feel that something needs to be placed in there, but this was sent out and you had 60 days for a comment. So this is January the 23rd, and 60 days probably would be this month.

MR. BALLARD: Request an extension.

MR. WILLIAMS: Well, seeing that they didn't know anything about it, I was just curious.

MR. TYLER: You know, I did not receive it or I missed it one.

MR. WILLIAMS: Okay, so, Alma said she would get it in the mail to you. So I would like everyone to get one and to really look over it as soon as possible.

MR. TYLER: Something about a deadline, that went by me now. When is the deadline?

MR. WILLIAMS: Well, they just ---

MR. BALLARD: That would be next week, wouldn't it?

MR. WILLIAMS: They said it's today.

MR. TYLER: By the time you get it to us, it would be null and void, wouldn't it?

MR. WILLIAMS: Yes.

MR. TYLER: So, I guess the only proper thing to do would be to request an extension so you could at least go through the process of acting like you're looking at it.

MR. WILLIAMS: But these rules are supposed to govern the Installation and environmental regulations that goes on at the Installation and the Restoration Advisory Board, how it's supposed to be handled, what procedures it's going to take and everything like that. I thought it was very important. That's why I brought it up.

MR. TYLER: Well, I would like to request a 30-day extension for those of us who were not here at the meeting who would like to take some extra time to be familiar with this.

MR. BALLARD: What did this come out of?

MR. DEBACK: It was published in the Federal Register and -- it's published in the Federal Register and put out for public comment, and a copy went to the RAB chair for distribution to the RAB. It was sent out by OSD.

MR. BALLARD: You know a request for extension to DLA is going to have no affect.

MR. DEBACK: Larry's got a name for us.

MR. TYLER: Could I direct Ms. Alma Moore to send that letter requesting an extension?

MR. WILLIAMS: She said she would.

MR. MOORE: No. I can't send a letter. It has to be a RAB member who sends a letter to request an extension. If you would like to give your packet to Mr. Tyler, he can do that. Because it was given to the co-chair and to Defense Distribution Center. Because it's a RAB thing. But if you will give your packet to Mr. Tyler, It has to be a RAB member.

MR. WILLIAMS: Okay, there's some notes. So make sure I get mine back.

MR. TYLER: I need a proper address.

MR. WILLIAMS: I want to get mine back.

MR. TYLER: As long as I get a proper address and the proper agency.

MR. WILLIAMS: Okay, well, I'll give this to you then. Okay, anymore comments? Okay.

MS. HOOKS: I have one question. You all seem to be very much sold on the ZVI. And I've heard mention that it has been used at other sites. How long -- well, actually over what period of time has this been used at other sites that will make you all so enthusiastic about the results?

MR. BALLARD: It's been used over the last ten years. It's being used at increasing number of sites. The first time -- the first application was a constructed wall where they would dig a trench down into the groundwater and install and place the iron in it and then backfill the trench above the water table and let the water flow through there. They are still installing those kinds of walls with shallow groundwater.

Part of the problem was, you know, how to do the same thing for deeper groundwater, and there is a new patented technology which allows you to install the material down to quite extensive depths to create a wall and then another patented technology using it to inject it out over an area -- horizontal area, which is what we want to do or what we plan to do for the groundwater underneath the source areas on Dunn Field.

So, the zero-valent iron is really a proven method of significantly quickly reducing the contamination from a chlorinated volatile organic. There are other methods of treating the chlorinated volatiles in place that we evaluated. For example, chemical oxidation by injecting permanganate is a viable method for most chlorinated volatiles, but it doesn't treat one of our major contaminants, which is 1,1,2,2 tetrachloroethane. So, the zero-

valent iron does treat the full sweep of contaminants that we have up there. It costs more than the chemical oxidation, but it treats the full sweep of contaminants. The advantage of doing it on these types of what we call in situ or in-place treatments is that you don't have surface infrastructure piping to maintain. You do your injection, verify it through borings that you've met your design objective for the construction of the remedy, and then your operate your maintenance of the remedy is basically long-term monitoring to ensure -- you know, both upgradient and downgradient in your treatment area to ensure that you're making progress towards your treatment goals.

MS. HOOKS: Okay.

MR. BALLARD: Maybe I didn't answer it.

MS. HOOKS: You didn't. You tell me that the technology has been in place for ten years, and you started talking about a new patented technology.

MR. BALLARD: Yes.

MS. HOOKS: I guess in order for me to be as enthusiastic as you and Jim are, one, I need to know how long the technology that is being used has been in place and used over what period of time at any other site that causes you all to be optimistic. Second, if I recall, I heard a minute ago that the results of the five-year study prompted, if you will -- and somebody can correct me if I'm wrong, prompted you all to look at the ZVI to be used. Well, if it's been used for ten years and it's had good results, I guess I'm curious to know why that wasn't used ---

MR. BALLARD: --- five years ago?

MS. HOOKS: Correct.

MR. DEBACK: That's not -- early on when we started the process after closure, we did initial studies. We knew that we had very significant groundwater problems at Dunn Field, and it was imperative that we do something immediately. At that time the technology in the

studies showed that we had to -- that we could install a pump and treat system. The intent of that interim remedy was to slow the movement of that groundwater towards the Allen Wellfield. That was the intent of that design.

Also, at that time, we were prevented from doing a more extensive study of Dunn Field because, as you recall, we had a chemical warfare materiel remediation that had to be done before we could go into Dunn Field and complete the Feasibility Study to make the determination of what would be the best remedy selection for that area.

And to answer your question about the newer patented technologies, one of the problems that we have that's different from maybe some other sites is the depth that we have to treat the groundwater. And the new technology addresses that delivery; how do you get the zero-valent iron into the right place so that it will do what you want it to do.

The other part of the process is -- and the wall is to capture that stuff that's already escaped from Dunn Field and is moving towards the Allen Wellfield. That's the intent of the wall, if you remember from our Feasibility Study.

The delivery of the other method is into the source area. The purpose of that is to immediately knock down those levels of contamination so that we don't have to wait for it to move towards the wall and then through the wall. So, it's like a double action, if you will.

We had the wall to address those contaminants that have already moved beyond Dunn Field, and then for the hot zones, if you will,

the really top source areas, we were using zero-valent iron injections to inject directly into those hot spots and knock those contamination levels down immediately.

The reason we're excited is because we did a pilot test, and, just like you say, you hear about other sites, but geology is not the same everywhere, and things don't react the same everywhere. So we did a pilot test. We drilled four wells. We went through the process to see how far out these what -- I call them pancakes, how far out these pancakes went, and then we monitored wells that were downgradient and upgradient to see what was happening down there after we put this zero-valent iron. The thing that's so exciting about it is that it happened right away. We had immediate results, and, so, it's encouraging that this -- that this particular remedy into those -- into that sweep of contaminants worked.

MS. HOOKS: Except for MW74 and 134 that you all are taking the position is that off-site contaminants are coming onto ---

MR. BALLARD: No, ma'am.

MR. DEBACK: No, no, no. No, that's a totally different issue.

MR. BALLARD: MW134 and 74 are both on Dunn Field, and the contaminants are from the Depot. But the issue was after the baseline sampling, before we did any injection, the first post injection sampling showed an increase in contamination, still from Depot related contaminants, but it showed an increase. The subsequent sampling shows the levels decreasing, and that was -- we were trying to -- after the first result, we were trying to postulate why it would have increased. And I think I addressed that earlier in my discussion.

MR. DEBACK: That was a displacement. You take something in a confined area, if you inject other material there; the material that's there has to go somewhere.

MS. HOOKS: I understand that.

MR. DEBACK: These wells -- these two wells are downgradient. They are in the vicinity of where we did the injections.

MS. HOOKS: Okay, one part of the question is not being answered, and that is where the ZVI has been used before, over what period of time has this been used to some level of success.

MR. BALLARD: I don't have a list of sites, you know, at the tip of my tongue to give you. But I can get that information for you and get it to you.

MS. HOOKS: I guess what I'm really asking is where you've used ZVI at these other sites, have you been over -- at whatever sites where it's been used, are we talking about something that was used over a period of a year and ---

MR. BALLARD: Oh, I see. I think I see what you -- how long has -- at any given site, how long has ZVI been used. Is that correct?

MS. HOOKS: Correct.

MR. BALLARD: Okay, when you put it in the ground, you don't take it out. It just stays there. So, it's been in place at sites for over ten years or more. It doesn't come out of the ground. It's a permanent installation.

MR. DEBACK: How long does it take to work?

MR. BALLARD: It works virtually, as we have seen, immediately, depending on how you deploy it. Our intent to deploy is to reduce the contaminants as quickly as possible, but it's not feasible to use the ZVI injection throughout the entire plume, which is why we wanted to deploy the downgradient permeable reactive wall in conjunction with treating the source material. That way we feel that's the best balance of using the zero-valent iron technology. But at any given site, once you install the material, it doesn't -- you don't take it out of the ground, especially at the depths that we're installing it.

MR. DEBACK: I think the answer to your question, Ms. Hooks, our remedy design calls for approximately 15 years before it's totally complete.

MS. HOOKS: Okay, and, evidently, I'm not communicating well, and I don't want to belabor ---

MR. DEBACK: We don't have -- we don't have any historical data of a specific site. There's been ---

MS. HOOKS: Thank you. That's exactly what I'm asking. We're being told that one was interim. Now we're talking about the ZVI that should resolve the problem. There is encouragement and enthusiasm for using the ZVI. But I want to know what is the track record out there that suggests now that we are passing interim to some kind of permanent remedy? What is it that I am supposed to carry back to the community to say okay, here is the historical data to support this second thing that we are now doing because the first was interim and was not a permanent resolution? And unless you correct me, I am now being made to believe that the ZVI is going to give us some permanent remedy. But there is no historical data to suggest -- even though I keep being told that at these sites, although none specific, it has been in place for ten years.
So, why is there no data that will bear out that ten years later, having used the ZVI at whatever site you have used, this has become a permanent remedy, which is why we should be encouraged and ---

MR. BALLARD: I can get that for you.

MS. HOOKS: Okay.

MR. BALLARD: I don't have it here.

MS. HOOKS: Okay.

MS. ARNST: The stuff that has been turned into something innocuous, was I believe your phrase, is there some way it can convert back into the dangerous thing it was before the ZVI application?

MR. BALLARD: No. That would -- we break the bonds. You can't make the bonds come back. It's a permanent chemical reaction that destroys the catalyst material.

MR. BRAYON: Mr. Ballard, if there is more contamination introduced in that particular area, would you have to reintroduce some of your material to ---

MR. BALLARD: Well, that's possible but the -- go ahead.

MR. MORRISON: Yes, that's a good point right there, and that is the third approach we're using, which we're doing the barrier. We're also doing the groundwater source, but we're also taking care of the -- what's called the unsaturated zone residual contamination out there with soil vapor extraction. So, we're approaching it in all different directions to try to reduce everything as quickly as possible.

And to try to answer your question on why I'm excited about this, these technologies that come out like zero-valent iron, sodium lactate, why I like these, they're innocuous. If there's contamination we have to worry about, we're not injecting other exotic chemicals down there that we have to do -- this is what's so nice about this. We're coming up with these although not cheap technologies. But when you look at it in the long run, you know, we're getting back to basic chemical reactions, and we're just giving the bugs a chance to work down there or we're stripping -- by change -- we're stripping the chlorines off by changing the redox condition in the sub stream. And we do not have to worry about these other chemicals that -- what you were talking about, you know, will these things be going back to another bad thing. Now, the end product or next to the end product on the TCE, PCE is vinyl chloride. The nice thing about this and what I've been seeing at my sites around West Tennessee -- and, actually, West Tennessee is taking the lead in a lot of these remedial technologies out there. We've been lucky to have a lot of these innovative technologies to come in here. We have a very valuable resource that we're trying to protect, our groundwater, and I just can't tell

you how happy I am about this. Because it's incredible. We're seeing great results in a short amount of time.

Whereas before, when we were doing the pump and treat technologies of pumping and treating for -- you know, pushed out 30 or 40 years, and we're taking, you know, millions and millions and millions of gallons out of the ground, and it still does not solve the problem. And as far as the timing of it goes, the sodium lactate really has only come into its own here in the last probably four years.

We've tried vegetable oil. We've had just implementation problems with that because of the oil floats. So we pump it down in there, and it tries to float back to the top and is not addressing the type of contaminants that are sinking down to the bottom or disburse themselves down through the bottom. It's just difficult, and now we're coming up and seeing that basic things are curing our problems.

MR. BRAYON: You know, this was the initial impact, but if you provide us with some historical data that would say that five years, ten years -- and I think that's what Ms. Hooks wants -- how would it stand then? What would the environment be after five to ten years?

MR. MORRISON: Well, that's going to be the time frames we're going to have to work on right now.

MR. BRAYON: But you said you have other sites.

MR. MORRISON: Yes, we've had other sites that have just come on line in the last couple of years, and we're seeing tremendous improvements, like the Air National Guard, the Navy base to the north that we're seeing great remedial efforts going on out there.

MR. BRAYON: So, all of these are in their initial phases.

MR. MORRISON: Yes, they're all in their initial phases, but they have been going on now for about four or five years, but we're just four or five years into it.

MR. BRAYON: But the technology has been around for ten years.

MR. BALLARD: No. We're getting confused between the Main Installation remedy, which is using the sodium lactate injection or enhanced bioremediation, and the Dunn Field remedy using zero-valent iron. So, we're getting a little confused between the two of them. Ms. Hooks' comment was specific to the Dunn Field remedy and why we were so enthusiastic about it, what history and data are there which, in conjunction with the results we're having in our own Treatability Study, that makes us so happy. Correct?

MS. HOOKS: Correct.

MR. BALLARD: So, I'm making myself a note to provide examples from other sites of the use of the zero-valent iron so that you can see that's not just something that we've, you know, thought up and thought it would be cool to try.

MR. WILLIAMS: Along with that, you're going to provide information on what -- where they have retrieved the information about, you know, the study that they have done. That's where we're at. We want to know the study, what kind of study that they were doing and where the people that's using the new systems that you were talking about. If they didn't have it for ten years, I know somebody has done a study on it and said this or that was going on. So, I think that's where we're up to.

MR. DEBACK: Don't forget, revolving technology all of these are, and as Turpin stated in the beginning, in the early stages they were using the shallow aquifers where they could physically dig a trench, put the iron into the trench, and then the groundwater flowed through it.

The technology that we're working on the design for is to inject this 90 feet below the surface. That is the patented technology we were talking about, and that's ---

MR. BALLARD: The concept -- I mean, the concept for the deep injection was approved into the Corps of Engineers in 1993. And they have steadily been improving their methods and abilities to not only install, but to prove how accurately it's been installed since then. So, like I said, I am going to give you examples from other sites that use zero-valent iron. I'm going to get copies of studies showing what the results are and also provide some website addresses, URL addresses so that you can check out some of the other resources.

MR. BRAYON: Include a timetable on that, too.

MR. BALLARD: A time to get it back to you?

MR. BRAYON: No, a timetable on the injection and what year ---

MR. BALLARD: The study -- that's what I'm saying. I'm going to get the studies from the other sites. Which, if I get what I want from them, we'll, you know, have a report that will have all of that, when it was injected and, you know, what the baseline sampling was, what their, you know, subsequent performance monitoring has shown.

MR. DEBACK: Mr. Myers.

MR. MYERS: Yes, I have a question. You say the final product uses vinyl chlorine?

MR. BALLARD: Yeah -- not the final.

MR. MORRISON: When I got finished with this, I realized I forgot that last -- usually ---

MR. MYERS: It's more of a carcinogen?

MR. MORRISON: Yes, exactly. Good catch. What you have to do is you have to push these subsurface environments into -- they're normally an oxidizing environment, what we have here in the Memphis area.

We want to push them into a reducing environment. That starts the breakdown of the TCE, the PCE and it's degradation products.

However, once you get -- as you progress along that pathway, you're going to reach a point where you're producing vinyl chloride, which is a bad contaminant. However, vinyl chloride breaks down in an oxidized environment. So, once you leave the reduction zone, these areas that we are putting the ZVI injection, what contaminants are left, and hopefully it's only vinyl chloride that will move out into the oxidizing zone and then it will begin to break down.

And what we're seeing all over Memphis, we hardly ever see vinyl chloride. Because it appears to be once it goes into the vinyl chloride state, when it gets into the oxidizing environment, it goes away, and we're just not seeing it at any great concentrations at any of our sites that we're doing this.

So, it looks like nature again is taking care of itself.

MR. MYERS: Unless you're using very special techniques, vinyl chloride is one of the -- is very hard to detect, and most of the time you're going to have to use temperatures, you know, below freezing in order to get that.

MR. BALLARD: Well, what we do, when we collect VOC (volatile organic compound) samples, they are transported on ice overnight for analysis. It's standard operating procedure for any Superfund site for any environment sampling.

MR. MORRISON: Yes. All samples -- we take as much care as possible. We make certain that what we pull out of the ground is preserved in a way that it can be analyzed and protected if it's there.

MR. WILLIAMS: Anymore questions, comments?

MR. TYLER: He's going to mail this to the RAB board or this data?

MR. WILLIAMS: Will it be before the next RAB meeting?

MR. BALLARD: I expect it will.

MR. WILLIAMS: Because we don't know when the next RAB meeting will be.

MR. TYLER: And the websites that I asked for three months ago will be included for everyone, not just me, but everyone?

MR. BALLARD: Yes. I've got get examples from other sites with zero-valent iron studies available, get copies of reports and websites ---

MR. TYLER: --- and history.

MR. BALLARD: --- and history. I will get whatever studies I can that are available to me.

MR. TYLER: The contractor -- can the contractor produce this?

MR. DEBACK: The vendor.

MR. BALLARD: The vendor can provide some. My problem is getting the results from the vendor is they are providing copies of their most successful stuff. I'm just going to do a search for sites using this and try and get examples of how -- over time, how that technology has been deployed and what their long-term results are showing.

MR. WILLIAMS: All right, if there are no more ---

MR. TYLER: Mr. Chairman, at other RABs -- other agencies-- is there a point of reference person?

MR. WILLIAMS: Look on the first page, on that first page if it has something on it about commenting on Pentagon Street or something like that.

MR. TYLER: Do they have a 1-800 number?

MR. DEBACK: I think they have an address.

MR. TYLER: And it also has a 1-800 number? Okay, I need 1-800 numbers.

MR. BRAYON: Just one other thing. I would like to thank Mr. Covington. Isn't he responsible for these calendars? I would like to officially thank him for giving us these.

MR. COVINGTON: The test is to put it together. It's supposed to form a little triangular stand for itself.

PUBLIC COMMENT PERIOD

MR. WILLIAMS: Okay, if there are no other questions, we will open the floor up to the public. (Brief pause.)

MR. WILLIAMS: So, would anyone like to make a motion to adjourn?

MR. TRUITT: Move to adjourn.

MR. WILLIAMS: All in favor?

THE BOARD: Aye.

MR. WILLIAMS: Any opposed? (Brief pause.)

MR. WILLIAMS: Meeting adjourned.

(Whereupon, at approximately 8:05 p.m. the meeting was adjourned).
NEXT MEETING TO BE ANNOUNCED AT A LATER DATE

These minutes were approved on October 21, 2004.

Attendance List

Restoration Advisory Board Members

Mr. Mondell Williams	Community Co-Chair
Mr. John DeBack	Interim Facility Co-Chair
Mr. Turpin Ballard	Environmental Protection Agency
Mr. Dave Bond	Citizen Representative
Mr. Jim Morrison	Tennessee Department of Environment and Conservation
Mr. Ulysses Truitt	Citizen Representative
Ms. Johnnie Mae Peters	Citizen Representative
Mr. Eugene Brayon	Citizen Representative
Mr. Stanley Tyler	Citizen Representative
Mr. Jim Covington	Depot Redevelopment Corporation (DRC)
Ms. Peggy Brooks	Citizen Representative
Ms. Diane Arnst	Memphis/Shelby County Health Department
Mr. Torrence Myers	Memphis Light, Gas & Water
Ms. Janet Hooks	Memphis City Council;

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Others in Attendance

Mr. Mike Dobbs	Defense Logistics Agency (DDC)
Mr. Jackie Noble	DDC
Mr. Jeff McCauslin	DDC
Ms. Angela McMath	MACTEC
Mr. Wayne Crist	MACTEC
Mr. Tom Holmes	MACTEC
Ms. Denise Cooper	MACTEC
Mr. Steve Offner	CH2M Hill
Mr. Dave Nelson	CH2M Hill
Ms. Alma Black Moore	Frontline Communications
Ms. Keren Adderley	Frontline Communications